Allergy Abstracts

Editor

M. M. ALBERT
Brooklyn

Associate Editors

M. HARTEN
Brooklyn, N. Y.

E. H. WALZER
Bridgeport, Conn.

E. W. KAILIN
Washington, D. C.

R. A. CHAIT
Brooklyn, N. Y.

H. J. FRIEDMAN
Cleveland, Ohio

J. SHERMAN
Baltimore, Md.

Advisory Editor

M. WALZER
Brooklyn, N. Y.

From the Allergy Division of
The Jewish Hospital of Brooklyn

Volume 14, Number 6 **November, 1949**

Asthma and Hay Fever

Orthoxine in Bronchial Asthma. A Clinical Evaluation. Schiller, I. W., Lowell, F. C., Franklin, W., and Denton, C.: New England J. Med. **241**: 231, 1949.

Fifty patients with bronchial asthma ranging in age from 4 to 63 years served as subjects for the clinical evaluation of Orthoxine. The dose varied from 50 mg. in children to 200 mg. in adults. Placebo tablets were used for control studies. Excellent results were obtained in 7 of 14 cases with mild asthma, in 10 of 21 cases with moderate asthma, and in only 1 of 15 cases with severe asthma. Fair results were noted in 17 patients and no relief in 17. Side reactions occurred in 7 patients (14 per cent) and included gastric disturbances (4), menstrual-like cramps (1), dizziness and sleeplessness (1), and excessive perspiration (1). Four of these 7 cases failed to obtain relief from the drug. Most of the patients preferred ephedrine to Orthoxine. Orthoxine is an effective oral sympathomimetic drug in milder cases of asthma. Although it is not quite so effective as ephedrine, it has the advantage of causing less disturbance of the cardiovascular and central nervous systems. H.

The Treatment of Bronchial Asthma With Isuprel. Lipman, W. H.: Ann. Allergy **7**: 385, 1949.

Isuprel was used in the treatment of twenty-three patients with bronchial asthma. Twelve were completely relieved by one 5 mg. tablet of the drug taken sublingually, and eight experienced only partial or slight relief. Seven of nine patients who took the drug orally maintained their freedom from asthma. Eight patients who were epinephrine-fast or developed side reactions from epinephrine were helped when Isuprel was administered subcutaneously. Side reactions, chiefly palpitation, weakness, and nausea, were experienced by fourteen patients. W.

Use of Silicones in Aerobiology. Pady, S. M., and Kelly, C. D.: Science **110**: 187, 1949.

Slides coated with silicone grease have been found to be superior to petrolatum-coated slides in collecting rust, smut, and alternaria spores from the air. They provide a white background which makes an effective contrast. The physical properties are retained at temperatures ranging from minus 75° C. to over 200° Centigrade. Slides may be sterilized with dry heat for two hours at 180° Centigrade. The difficulty encountered with agar plates which freeze when exposed from airplanes has been overcome by using sterilized silicone grease-lined Petri plates. Later, when melted agar is poured into the plates bacteria and fungi will grow out satisfactorily. It is suggested that this grease may be of value in pollen slide studies. B. SIEGEL.

Bronchography in the Severely Discharging Lung. Lett, J. E., and Dietz, M. W.: Bull. Johns Hopkins Hosp. **85**: 135, 1949.

For bronchographic examination in patients with copious pulmonary discharge, the authors recommend the following preparatory procedure. Twenty-four hours prior to bronchography the patient is subjected to bronchoscopy for the removal of collected secretions. Following this, postural drainage is instituted. After anesthetizing the upper respiratory passages, a thin-walled plastic endotracheal tube is passed under mirror vision into the upper trachea. The bronchial tree is then aspirated by a long catheter, in occasional patients flushed with small quantities of saline solution, and then anesthetized with dilute Pontocaine solution. The oil catheter is then introduced with the endotracheal tube left in place. B. SIEGEL.

Temporary Relief of Asthma by Jaundice. Gorin, N.: J. A. M. A. **141**: 24, 1949.

Three patients with intractable asthma experienced definite remissions in their symptoms with the onset of jaundice. The jaundice was of a different etiology in each case. It is interesting to recall that one often notes improvement in rheumatoid arthritis after the onset of jaundice. F.

Dermatology

Aminophylline as an Antipruritic Agent. III. Comparison With Certain Other Theophylline Salts. Epstein, E.: Arch. Dermat. & Syph. **58**: 47, 1948.

One-half gram of aminophylline in 20 c.c. of diluent administered intravenously produced complete and immediate relief in 80 per cent of thirty patients with various types of pruritic dermatoses. The relief lasted for an average of 10.8 hours. The number of injections given to any patient was limited by the immediate side reactions to the drug. These reactions could be diminished by further dilution of the drug, but this reduced its antipruritic effect. With a similar dose of theophylline monoethanolamine, immediate relief was obtained in 75 per cent of eight patients, for an average of 7.3 hours. When 0.732 Gm. of theophylline methylglucamine in 20 c.c. of diluent was given intravenously to nine patients, 44.5 per cent obtained complete immediate relief for an average of 5.7 hours. Aminophylline appeared to be the most effective antipruritic agent among the theophylline salts. B. SIEGEL.

Contact Dermatitis From Streptomycin. Levin, S. J., and Moss, S. S.: Arch. Dermat. & Syph. **59**: 663, 1949.

A nurse, working in a tuberculosis hospital, suddenly developed a severe eruption of the face and neck which disappeared soon after she discontinued her duties. Following her return to work, a similar eruption recurred. The condition consisted essentially of a severe acute dermatitis of the face and neck with pronounced edema of the eyelids. One of the nurse's duties was the parenteral administration of streptomycin. Patch tests done with all substances used in her work showed a positive reaction to streptomycin only. Following avoidance of contact with this drug, no further eruptions occurred.

B. SIEGEL.

Thioglycollate Cold Wave Process. McNally, W. D., and Scull, R. H.: Arch. Dermat. & Syph. **57**: 275, 1948.

Cold wave solution (6.5 per cent ammonium thioglycollate) was applied to the backs of white rats for 24-hour periods daily, for ten days. Within a few days, redness of the skin developed, and the hair began to fall out. When the same solution was applied to the backs of rats or guinea pigs for one-hour periods daily, six days a week for from one to three months, no reaction occurred. The same procedure on previously scarified skin had to be discontinued after seven days because of severe local irritation. Hematological studies in test animals were negative. The thioglycollate solution was applied to the skin of the arm and at the hairline of the scalp of 154 human beings, with and without dermatologic disorders, for from 40 to 60 minutes daily, six days a week for a period of two months. Dermatitis did not occur. It is concluded that the cold wave solution containing 6.5 per cent ammonium thioglycollate is nontoxic when applied in the manner described. B. SIEGEL.

Facial Allergic Candidid. Ruiz-Moreno, J.: Acta Allergologica **2**: 1, 1949.

The facial allergic candidid syndrome is characterized by the presence of a dry, scaly, pruritic dermatitis on the eyelids and, less frequently, about the mouth or on the chin or neck. The lesions are always bilateral and symmetrical. In all patients with this "id" reaction, there is a focus of *Candida albicans* in the skin, mucous membranes, or the intestines. Intracutaneous testing produces delayed positive cutaneous reactions which are considered to be of diagnostic value. Passive transfer tests are negative. A perennial and seasonal form of the facial candidid is described. Good results may be obtained by subcutaneous injections of increasing doses of active candidin of known strength. H.

A Study on the Effect of Ultraviolet Light on Allergic Immediate Wheal Skin Reactions. Norrlind, R.: Acta Allergologica **2**: 14, 1949.

Cutaneous sites on the back were sensitized locally with 0.1 c.c. of the serum of patients sensitive to danders or pollens. Forty-eight hours later, the sites were tested with 0.05 c.c. of antigen. Passive transfer tests made on markedly erythematous skin, following mercury vapor-lamp exposure, yielded smaller reactions than those made on nonirradiated skin. The size of the reaction was not affected when these tests were done on weakly radiated skin with slight or no erythema. The irradiation of remote skin areas had no appreciable effect on the results of passive transfer tests performed on the nonirradiated skin. H.

Pruritus Hiemalis. Arnold, P.: Brit. J. Dermat. **61**: 59, 1949.

Pruritus hiemalis is characterized by paroxysms of itching occurring in persons who, during the winter, enter from the cold into warm surroundings. The affected areas are those covered with clothing and the condition occurs in adolescents or adults with dry skins. There are no primary skin lesions, the visible changes being secondary to scratching. A case of pruritus hiemalis in a healthy young male is described. All physical findings and laboratory tests were normal. Chilling of a circumscribed area of skin failed to produce itching, but immersion of the entire body in a cold bath for twenty-eight minutes, followed by warming, resulted in severe itching which lasted for seventeen minutes. The same experiment was repeated on a second occasion with similar results. Attempts at passive transfer of the sensitivity failed. It was concluded that the pruriginous agent was not formed in the skin but reached it from elsewhere as a result of disturbance of some other organ. C.

Effects of Topical Applications of Diphenhydramine Hydrochloride (Benadryl). McGavack, T. H., Schulman, P., Schutzer, R., and Elias, N.: Arch. Dermat. & Syph. **57**: 308, 1948.

Wheals were produced in 63 normal subjects by a needle prick under a drop of 0.1 per cent solution of histamine diphosphate. When Benadryl ointment was applied to a normal area that had been pricked, only 3 out of the 63 subjects demonstrated a small wheal without erythema. When 2 or 5 per cent Benadryl in various ointment bases was applied four to five minutes after the histamine reaction developed, the duration of the reaction was definitely diminished. The application of the Benadryl ointments four to five minutes before introducing the histamine into the skin either completely abolished or markedly suppressed the reaction. About 85 per cent of 56 patients with various itching dermatoses obtained partial or complete relief of itching while using Benadryl ointments. Six patients experienced untoward reactions to the ointment. The most effective base appeared to be carbowax 1500 monostearate, an oil-in-water emulsion. A sterol base containing relatively high concentrations of pure cholesterol and other closely related alcohols from wool fat (Amerchol) was found to be a superior vehicle to a mixture of wool fat and white petrolatum. B. SIEGEL.

Relief From Pruritus Following Upon Administration of Adenylic Acid. Rottino, A.: Proc. Soc. Exper. Biol. & Med. **71**: 379, 1949.

An accidental observation that adenylic acid markedly relieved the pruritus of Hodgkin's disease led to its investigation as an antipruritic agent. Adenylic acid was administered to 35 patients with pruritus of various etiologies. Definite improvement occurred in about 80 per cent of the cases. Relief of symptoms followed from one to seven days of therapy and in some instances lasted as long as four months following cessation of the use of the drug. When symptoms recurred, readministration of the drug often produced further remission. It is suggested that pruritus may result from a deficiency in adenylic acid. R. WISEMAN.

Allergic Contact Dermatitis Due to Rubber With Special Reference to Latex. Ellis, F. A., and Siegel, J. M.: Arch. Dermat. & Syph. **58**: 405, 1948.

Two cases of contact dermatitis caused by synthetic rubber are described. One patient gave a history of skin eruptions following the wearing of rubber apparel. Within twenty-four hours after inflating and donning a pair of synthetic rubber gloves, the patient developed extensive weeping vesiculobullous dermatitis involving her hands, wrists, forearms, arms, neck, and face. Patch

testing yielded positive reactions to three of the six samples of synthetic rubber tested. Patch tests with crude Neoprene were negative and the patient was able to wear gloves made of this material. The other patient with no previous history of dermatitis suddenly developed an acute edematous eruption of her forearms, arms, neck, and face. A pair of baby synthetic rubber pants was found to be the offending contactant. Three out of four brands of pink rubber baby pants gave positive reactions on patch testing. The specific offending agent in synthetic rubber could not be detected in either case because of the complexity of the processing methods involved and the refusal of manufacturers to disclose their "trade secrets." B. SIEGEL.

Familial Urticaria Due to Cold. Witherspoon, F. G., White, C. B., and Bazemore, J. M.: Arch. Dermat. & Syph. **58**: 52, 1948.

A 19-year-old soldier was admitted to an army hospital with urticaria and joint pains following exposure to cold. In infancy, exposure to cold was followed by cyanosis and then by erythema of the skin. Since childhood he had recurrent episodes of urticaria, burning sensations with pruritus, arthralgia, chills, and a slight elevation of temperature following exposure to cold. Of forty-five members in his family, including four generations, twenty-four persons had similar symptoms. There was not a single child in the family afflicted with this condition whose parent did not have it. B. SIEGEL.

Subungual Hemorrhages and Hyperkeratoses Due to Everon. Sullivan, M.: Bull. Johns Hopkins Hosp. **84**: 11, 1949.

A 42-year-old female reported that about twelve hours after she had applied Everon nail base for the first time, she experienced pain under one nail. Following a second application one week later, she had increasing pain and later noticed a purple-brown discoloration under all of the nails. Examination revealed onycholysis of the upper half of each nail, thick hyperkeratosis of the nail bed under the area of onycholysis, and wide bands of brown discoloration across the middle and lower portion of each nail. Patch tests were markedly positive to Everon. Positive patch-test reactions were also obtained with three other brands of nail bases and with a rubber solution, which is one of the ingredients of Everon. With avoidance of the offending agent the lesions gradually disappeared. B. SIEGEL.

Otorhinology and Ophthalmology

Allergy and the Tonsil Problem in Children. Clein, N. W.: Ann. Allergy **7**: 329, 1949.

Among 136 children in whom the presence of allergy was recognized and properly treated, only 3 per cent had a regrowth of tonsillar or adenoid tissue following tonsillectomy and adenoidectomy. In a second group of 60 children who had similar surgery performed, there was regrowth of tonsillar tissue in 23 per cent. In this group, 10 patients were suspected of being allergic prior to surgery, but no antiallergic program had been instituted. Hence failure to recognize the presence of allergy increases the likelihood of a regrowth of lymphoid tissues following tonsillectomy and adenoidectomy. W.

Evidence on the Genesis of Certain Common Nasal Disorders. Holmes, T. H., Goddall, H., Wolf, S., and Wolff, H. G.: Am. J. Med. Sc. **218**: 16, 1949.

Nasal obstruction, swelling of the turbinates, and hypersecretion are often initiated by a filterable virus with the resultant production of the typical "common cold." Such nasal hyperfunction may also result from certain life experiences which engender insecurity and conflict. Over 4,000 observations were made on a series of 112 patients ranging in age from 13 to 60 years. Nasal

examinations under controlled conditions were made before and during the psychiatric interviews. Pathologic changes typical of other types of nasal hyperfunction were commonly associated with situations productive of anxiety, hospitality, conflict, guilt, frustration, and resentment. A pyogenic-like reaction with an increase in the neutrophile and eosinophile content of the nasal secretions was also observed. Biopsy studies of tissue obtained under the above conditions showed edema of the stroma, dilated vascular and lymphatic channels, and hypersecretion of the mucous glands. Nasal pain was commonly experienced as an accompaniment of the reaction. The nasal reaction which occurs under the conditions described is believed to be part of a broad biologic pattern of defense. F.

Allergic Ocular Reaction to the Tuberculin Test. Weizenblatt, S.: Arch. Ophth. **41**: 436, 1949.

A healthy, nonatopic male, with normal eyes, responded to a routine intracutaneous test with 0.1 mg. of old tuberculin with a 4-plus cutaneous reaction. Five days later he developed a bilateral neuroretinitis and cyclitis which took several weeks to heal. Six and one-half years later, another tuberculin test resulted in a 3-plus cutaneous reaction. Seven days later he developed a bilateral neuroretinitis and cyclitis. He was free of ocular symptoms between the tuberculin tests and tolerated all inoculations while in military service without ill effects. C.

Miscellaneous Allergies

"Cerebral Edema" Due to Phenobarbital Sensitivity. Clinical Study of a Case. Jenkins, C. M.: Ann. Allergy **7**: 346, 1949.

A 26-year-old atopic nurse was hospitalized in a semicomatose state with a multiform rash which was predominantly morbilliform but partly urticarial. Other positive findings included a slightly elevated temperature and Cheyne-Stokes respiration. Following the therapeutic administration of Luminal Sodium subcutaneously at a later date, a similar clinical picture resulted, together with blurring of the discs, retinal edema, elevated spinal fluid pressure, and increased blood pressure. A direct skin test with phenobarbital resulted in a wheal 0.5 cm. in diameter with an areola and was followed by a recurrence of the above described clinical picture. Control tests with Seconal Sodium and Sodium Amytal were negative. W.

Induced Insulin Resistance in the Rabbit. Lowell, F. C., and Franklin, W.: J. Clin. Investigation **28**: 199, 1949.

Insulin with adjuvants was injected into rabbits normally responsive to the hypoglycemic effects of insulin. Four of twenty-four animals became insulin-resistant within three months. One of the resistant animals was studied in detail. He could not be considered resistant to his own insulin since he maintained a normal fasting blood sugar and gained weight. He was found to be resistant to beef and pork insulin but responded normally to human insulin. Insulin, inactivated by cysteine, was injected with the idea of neutralizing circulating antiinsulin antibodies. Thereafter, regular beef or pork insulin was effective in lowering blood sugar in this previously resistant animal. Cysteine-inactivated insulin failed to lower blood sugar in normal animals or to alter the effect of regular insulin on them. Hence insulin, denatured by cysteine so as to destroy its hypoglycemic activity, retained its capacity to combine with antiinsulin antibody. K.

Intubation Studies in Intestinal Allergy. Schloss, E. M.: Am. J. Med. **7**: 156, 1949.

Changes in tonus and motility rate of jejunal segments were detected by means of a balloon-capped Miller-Abbott tube connected to a pressure chamber-

diaphragm unit and a water manometer. The changes were recorded on a kymograph. Tracings obtained prior to the introduction of allergenic foods showed no divergence from the range of variability found in normal individuals. In 22 food-sensitive patients, alterations in the kymographic recordings became apparent from one to twelve minutes following the instillation of allergenic foods. The onset of the reaction phase was marked by a gradual increase in the height and duration of the phasic pressure waves. The pattern of the waves varied with the degree of jejunal edema and contraction. The total duration of the reaction to a given allergen varied from twelve to eighteen minutes. There did not appear to be any relationship between the duration of the reactive phase and the severity of the contractions as measured either in frequency or in amplitude. The intubation procedure appears to afford a means of securing confirmative evidence of the specificity of food allergens in a given individual. A number of foods may be tested during the course of a single intubation. F.

Heparin Hypersensitivity. Hojensgard, I. C., and Schwartz, M.: Acta Allergologica **2**: 7, 1949.

Four cases of allergic reactions to heparin described in the Swedish literature and a single case reported in this country are reviewed. A reaction consisting of mild shock, flushing of the skin, especially of the face, and a generalized urticaria lasting for several hours occurred in a 51-year-old man who had received a single intravenous injection of 150 mg. of heparin. Intracutaneous tests with undiluted heparin from different sources all gave strongly positive reactions. These tests on other patients gave negative reactions. Passive transfer tests with blood taken three hours after the onset of the urticarial reaction were negative. The patient had never previously received heparin or serum and had no personal history of allergy. H.

Histoplasmin Patch Test. Vollmer, H.: Am. J. Dis. Child. **78**: 65, 1949.

Patch tests made with concentrated histoplasmin solution failed to elicit cutaneous reactions in persons showing positive reactions when tested intracutaneously. K.

Nephrotoxic Nephritis in Rats. Evidence for the Glomerular Origin of the Kidney Antigen. Solomon, D. H., Gardella, J. W., Fanger, H., Dethier, F. M., and Ferrebee, J. W.: J. Exper. Med. **90**: 267, 1949.

Repeated intraperitoneal injections of blood-free rat kidney in rabbits produced antikidney sera. The immune globulin (fraction II plus III) was precipitated by alcohol at a pH of 6.8 and at −5° C., and then resuspended in saline and brought to its original concentration. When this material was injected intravenously in rats, they developed acute or chronic nephritis. Rat kidneys were macerated and separated roughly into glomerular and "other" fractions. The nephrotoxic factor was absorbed by the finely ground rat glomeruli but not by other portions of rat kidney or by other rat tissues. "It was concluded that nephrotoxic sera of this type react primarily with glomerular tissue and, by inference, that the antigen essential for the production of these anti-kidney sera was of glomerular origin." K.

The Ulcerative Colitis Problem. Andresen, A. F. R.: New York State J. Med. **49**: 1783, 1949.

The author believes that food allergy is the most important etiologic factor in so-called idiopathic ulcerative colitis. Pathologic changes seen in the colonic mucosa are identical with those observed in experimentally induced intestinal allergy. In sensitive cases, proctoscopic and radiologic examinations may reveal the complete disappearance of lesions upon withdrawal of an allergen.

In ulcerative colitis of allergic origin, milk was found to be one of the excitants in 80 per cent of cases and the sole offender in 40 per cent. Wheat was incriminated in 18 per cent of cases, tomatoes in 15 per cent, oranges and potatoes in 12 per cent, and eggs in 9 per cent. Careful diet studies are of great diagnostic value. Oral or parenteral desensitization with food proteins has no place in the treatment of this condition. C.

Neohetramine in the Treatment of Experimental Tuberculosis. Duca, C. J., and Scudi, J. V.: Ann. Allergy **7**: 319, 1949.

Guinea pigs were injected subcutaneously with a virulent strain of human-type tubercle bacilli. Ten days later all reacted positively to 1 mg. of old tuberculin. One-half of the group was then given 6 mg. Neohetramine subcutaneously twice a day for varying periods. The others served as controls. The animals were weighed and tested with 1 mg. old tuberculin at frequent intervals. All animals were sacrificed and autopsied at the end of three months. The response to the tuberculin test remained unchanged during the experiment and there was no consistent trend in weight-gain curves. In the treated group the lesions were decidedly more chronic in character and contained less acid-fast organisms than those of the controls. W.

Oral Reactions to Penicillin. Cross, W. J.: Brit. M. J. **1**: 171, 1949.

Reactions in the mouth following the oral use of penicillin in the form of lozenges consist mainly of discoloration of the tongue and stomatitis. Tongue discoloration occurred in 30 per cent of the 50 cases studied. It usually begins two to four days after starting treatment and disappears in five to fourteen days. The tongue may be yellow, brown, green, or black. Soreness of the tongue and occasionally of the whole mouth and pharynx may persist from six to ten days and may be accompanied by a loss of taste. These oral reactions do not depend on a nicotinamide deficiency nor is the lozenge base responsible for them. Since reactions do not occur for forty-eight hours, that is, until there has been a complete change in the character of the oral flora, the author suggests that the use of penicillin lozenges be limited to a forty-eight-hour period. H.

Tuberculin, Coccidioidin and Histoplasmin. Sensitivity in Relation to Pulmonary Calcifications. Beadenkapf, W. J., Loosh, C. G., and Lack, H.: Pub. Health Rep. **64**: 17, 1949.

Intracutaneous tests with coccidioidin and histoplasmin antigens were done on 6,000 students at the University of Chicago because of evidence that histoplasmosis and coccidioidomycosis may be etiologically associated with pulmonary calcifications. This study of a population of diverse origin confirmed results of previous surveys. Tuberculin sensitivity increased from 10 per cent in the youngest age group to 57 per cent in the 50-year age group. Histoplasmin sensitivity, which was 10 per cent among the youngest group, reached 38 per cent in the oldest group. Pulmonary calcifications were associated with histoplasmin sensitivity twice as frequently as they were with tuberculin sensitivity. Histoplasmin sensitivity and pulmonary calcifications occurred mostly in individuals from the lower Mississippi Basin. H.

Loeffler's Syndrome. Falk, M. S., and Newcomer, V. D.: J. A. M. A. **141**: 21, 1949.

Transeint pulmonary infiltration with eosinophilia was encountered in two patients with syphilis who were being treated with penicillin in oil and wax. The eosinophile counts reached 44 per cent in one patient and 37 per cent in the other. The agent responsible for the reaction was not definitely determined, but the beeswax was suspected. F.

Anaphylaxis

A Delayed Chronic Inflammatory Reaction at an Antigen Depot in the Guinea Pig, Effected by Systemic Sensitization. Kopeloff, L. M., and Kopeloff, N.: J. Immunol. **62**: 363, 1949.

Guinea pigs of mixed breed were given subcutaneous injections in the nuchal region of antigen-adjuvant combinations according to the method of Freund. Concomitantly, depots of antigen alone were deposited intramuscularly into the anterior site of one hind foot. Normal rabbit serum, normal horse serum, rabbit antirat-organ antiserums, therapeutic horse serum preparations, and crystalline chicken ovalbumin served as antigens, and killed tubercle bacilli in an oil emulsion were used as adjuvants. In most of the animals, a striking inflammatory reaction was observed in the injected hind foot, usually between the ninth and twentieth days. Redness, swelling, heat, and apparent pain characterized the reaction which reached its peak in the third week. When the reaction was particularly severe, it persisted as a chronic inflammation similar to an arthritic reaction for as long as five to seven weeks. Intracutaneous injections on these guinea pigs revealed a high degree of skin sensitivity of the delayed type. The omission, in control animals, of the antigen-adjuvant injection or any of its components or of the local antigen depot prevented the occurrence of the reaction. Antiserum proved more effective than normal serum in producing the local inflammatory response. There was no definite relationship between precipitin titers and clinical reactions, since the latter depended on both the degree of sensitization and the undetermined amount of residual antigen persisting at the local site. Heating diminished the power of normal serum to produce the clinical response, but antiserum was more heat stabile. Since the mechanism of the arthritis appears to be allergic in nature, it is suggested that a new approach is opened for the study of the role of streptococci and other bacteria in the etiology of rheumatic fever, rheumatoid arthritis, and arthritis deformans. R. WISEMAN.

Effect of Phenergan (N-Dimethylamino-2-Propyl-1-Thiodiphenylamine, 3277 RP) on the Arthus Reaction in Rabbits. Benacerraf, B., and Fischel, E. E.: Proc. Soc. Exper. Biol. & Med. **71**: 349, 1949.

Rabbits were injected intramuscularly with two doses of Phenergan in amounts of from 25 to 100 mg. per kg. at four-hour intervals. The larger doses produced drowsiness, muscular incoordination, and twitching, but with one exception, all animals recovered completely in a few hours. They then received 1.5 to 2.0 mg. of crystalline egg-albumin nitrogen intravenously, followed 30 minutes later by 0.025 to 0.22 mg. antibody nitrogen intracutaneously. Reverse, passively induced Arthus reactions developed within twenty-four hours. Phenergan in the larger doses had a definite inhibitory effect on the severity of the reaction at the higher concentration of the antibody. Rabbits treated with 75 mg. per kg. of Phenergan every four hours for three doses showed no reaction to large skin test doses of streptococcal erythrogenic toxin, while control animal showed edema and erythema. The action of Phenergan is attributed to its ability to decrease capillary damage and permeability.
I. GLAZER.

A Quantitative Study of Passive Anaphylaxis in the Guinea Pig. V. The Latent Period in Passive Anaphylaxis in Its Relation to the Dose of Rabbit Anti-ovalbumin. Benacerraf, B., and Kabat, E. A.: J. Immunol. **62**: 517, 1949.

Guinea pigs were passively sensitized intravenously with 0.015 to 2.0 mg. of rabbit antiovalbumin nitrogen and shocked intravenously by 0.16 mg. oval-

bumin nitrogen after an interval of 0, 0.5, 1, 2, or 5 hours. All antisera except one were nontoxic for control guinea pigs. The latent period for passive anaphylactic sensitization was found to be inversely proportional to the quantity of antibody used, provided an excess of antigen was employed to shock the animals. As the quantity of antibody used for sensitization was increased, the amount of antigen needed for fatal or severe shock diminished. It is suggested that the increase in sensitizing capacity of a given quantity of antibody, which accompanies a prolongation of the latent period, is associated with the time-consuming process of antibody fixation on the cells. I. GLAZER.

The Immunochemistry of Allergens. IX. The Relationship of Carbohydrate to the Antigenic Properties of the Allergenic Protein From Cottonseed. Coulson, E. J., Spies, J. R., and Stevens, H.: J. Immunol. **62**: 171, 1949.

Studies were done with the cottonseed allergenic fraction CS-1A, its electrophoretic fractions and their dialytic products containning different proportions of carbohydrate and protein. Schultz-Dale experiments indicated the equal potency and antigenic identity of the dialyzed residues, the dialyzates, and carbohydrate-free allergenic protein, when tested on the basis of equal nitrogen content. Using a high titered CS-1A rabbit antiserum, the dialyzates had only one-half the precipitative capacity of the original fractions and correlated more closely with their nitrogen content than with their carbohydrate content. The sensitizing capacity for guinea pigs of the electrophoretic and dialytic fractions, estimated on a nitrogen basis, rose as the carbohydrate content increased. On the other hand, the carbohydrate did not determine the immunologic specificity or the shocking capacity of the fractions. I. GLAZER.

Pharmacology, Physiology, and Pathology

Immunological Evidence on the Role of the Lymphocyte in Antibody Formation. Habel, K., Endicott, K. M., Bell, F., and Spear, F.: J. Immunol. **61**: 131, 1949.

Rabbits were inoculated into the foot pad with formalinized suspensions of bacteria. The cellular and agglutinin responses of the popliteal lymph node, the lymph from its efferent ducts, the extract from the lymphocytes of this lymph, and the blood serum were studied. Agglutinins appeared simultaneously in the serum, lymph, lymphocytes, and lymph-node extracts on the third to the sixth day and maintained high titers throughout the period of study. There was a markedly increased cellular response in the inoculated side as compared with the opposite side. When antibodies began to appear on the inoculated side, they were always present in the serum and in the lymph, lymphocytes, and nodes of the opposite side, but in a slightly lower titer. Rabbits passively sensitized intravenously demonstrated a high antibody titer in their lymph. When lymphocytes were thoroughly washed before extraction to remove lymph and serum adhering to the cells and tube, the antibody titers were markedly reduced. It was assumed that the antigen exerted a diffuse effect and was probably circulating in the blood soon after being injected. Antibodies detected in the lymph or cells from the regional nodes were not necessarily formed there, particularly in view of the possible transfer of passively acquired antibodies from blood to lymph and cells. There was little significant evidence in the experiments to indicate that the lymphocytes or lymph node cells carry much larger amounts of antibodies than serum. Thus it is suggested that until more critical immunological techniques are used, the immunological evidence for lymphocyte production of antibodies must be considered incomplete. I. GLAZER.

Nuclei Acids and the Production of Antibody by Plasma Cells. Ehrich, W. E., Drabkin, D. L., and Forman, C.: J. Exper. Med. **90**: 157, 1949.

Forty-one rabbits were injected with typhoid antigen in the foot pads. They were sacrificed at varying intervals up to nine days after the injection. Determinations were carried out on the regional lymph nodes for desoxyribose nucleic acid (DNA), which is formed when chromosomes multiply, and for ribose nucleic acid (PNA) which is associated with the production of cytoplasmic protein. Antibody titer in the popliteal lymph node is known to reach a maximum by the fifth and sixth days and then to decline rapidly. During the first four days when the increase in DNA was greatest, the histologic picture was interpreted by the authors as multiplication of plasma cell precursors. Mature plasma cells were predominant on the fifth and sixth days and thereafter diminished rapidly. The concentration of PNA rapidly increased when the plasma cells reached maturity. Lymphocytes began to proliferate on the third and fourth days and became fully active only on the ninth day. Thus antibody production appeared to coincide with plasma cell formation and to precede lymphocytic formation. This is considered supportive evidence that the plasma cell and not the lymphocyte is responsible for antibody formation.
K.

Influence of Mode of Immunization on the Relationship Between the Development of Tissue Titers and the Release of Hemolysins in Vitro. Roberts, S., Adams, E., and White, A.: J. Immunol. **62**: 155, 1949.

Two groups of rats were sensitized with washed sheep erythrocytes, one group receiving a single intravenous immunization and the other a series of intraperitoneal injections. The highest tissue titer was developed by the spleen four days following the intravenous injection. At this time serum titers were also at a peak. The maximum release of antibody in vitro by splenic tissue also occurred about four days following sensitization. Formation of antibody by surviving splenic tissue was suggested by an increase in the release rate of hemolysin. Similar titers in rats receiving repeated intraperitoneal injections of antigen were, in general, lower than in animals receiving a single intravenous injection of the same antigen. Studies of tissues from rats given intraperitoneal injections of antigen revealed that mesenteric lymph nodes played a significant role in these animals in antibody release and that the spleen was much less important.

Tissue minces from nonimmunized animals were also observed to take up antibody when incubated in immune serum. It is suggested, therefore, that an equilibrium may exist between plasma and tissue antibody and that the presence of antibody in any particular tissue does not necessarily represent its capacity to form this substance. It is concluded that the relative contribution of various reticulo-endothelial and lymphoid elements to antibody production and release may be conditioned by the rapidity and degree of exposure of these foci to administered antigen.
R. WISEMAN.

A Fatal Reaction to Methapyrilene. Rives, H. F., Ward, B. B., and Hicks, M. L.: J. A. M. A. **140**: 1022, 1949.

Toxic symptoms developed in a 16-month-old girl two hours after the accidental ingestion of 100 mg. of methapyrilene hydrochloride (Thenylene). The first manifestations were projectile vomiting and listlessness. Symptoms of cerebral irritation soon developed. The CO_2 combining power of the blood fell to 25 mg. per cent and the nonprotein nitrogen rose to 240 mg. per cent. Albumin and casts appeared in the urine. The temperature rose to 107° F. and death ensued after fifteen hours. Autopsy revealed cerebral edema and upper nephron nephrosis.
F.

The Effect of Antihistaminic Drugs on Convulsive Seizures. Churchill, J. A., and Gammon, G. D.: J. A. M. A. **141**: 18, 1949.

Epileptic patients were treated with Pyribenzamine and Benadryl to determine the effect which these drugs might have on the seizures. Ten of thirteen patients treated with intravenous Benadryl showed a definite reduction in the spike-wave abnormalities of the electroencephalograph. Both the true and variant forms of petit mal were affected. In contrast to the effect on petit mal, Benadryl increased the amplitude and frequency of the spikes in two cases of focal discharge. In one of these patients a motor convulsion followed the administration of the drug. In contrast to the effect of Benadryl, Pyribenzamine produced a distinct increase in the abnormality of the electroencephalograph in five out of seven cases of petit mal. One patient developed a grand mal seizure. When the drugs were administered orally, the results were similar to those following intravenous administration. It is posulated that the effect of these drugs probably depends on their action on the thalamic region of the brain. Because they may induce epileptic seizures, they must be used with extreme care in the treatment of such patients. F.

Vaso- and Bronchodilator Effects of N-Isopropyl-norepinephrine in Isolated Perfused Dog Lungs. Hebb, C. O., and Konzett, H.: J. Pharmacol. & Exper. Therap. **96**: 228, 1949.

N-Isopropyl-norepinephrine, also known as Isuprel, Aludrin, Neo-Epinine, Neodrenal and Norisodrine, acts as a bronchodilator in dogs, guinea pigs, and cats. It has been found to be a peripheral vasodilator and it has a vasodepressor effect, despite a strongly stimulative action on the heart. Its effect on the pulmonary circulation was studied by the perfusion of isolated, ventilated dog lungs. Doses of one or more micrograms produced a slight fall in pulmonary arterial pressure, sometimes accompanied by a fall in the venous reservoir volume. Epinephrine, on the other hand, in a dose range of one to one hundred micrograms always caused a rise in pulmonary arterial pressure and a fall in lung blood volume. There was no evidence that ergotoxine could suppress or reverse the vasodilator action of Isuprel.

Isuprel in doses of one microgram or more produced bronchodilation in normal lungs and in lungs constricted by histamine, pilocarpine, or acetylcholine. Isuprel was five to ten times more effective as a bronchodilator than epinephrine. One per cent solution of Isuprel administered as a spray was also effective. It is pointed out that the effects of Isuprel in the intact, unanesthetized animal may not be identical with the results reported in these experiments. However, it may be expected to produce pulmonary vasodilation which would diminish the load on the right heart and might possibly increase blood oxygenation by improving lung blood flow. K.

Fatal Pancytopenia Following the Use of Mesantoin. Weller, R. W., and Metcalf, J.: New England J. Med. **241**: 17, 1949.

Mesantoin, a chemical closely related to Dilantin, has been used as an anticonvulsant since 1945. Several cases of pancytopenia following its use have been reported. The authors describe an additional case of fatal pancytopenia following the use of Mesantoin. Autopsy findings consisted of multiple visceral and cutaneous hemorrhages and an aplastic bone marrow. H.

Thyroid Activity and Resistance to Histamine-Induced Peptic Ulcer and Acute Histamine Poisoning. Watman, R. N., and Nasset, E. S.: Am. J. Physiol. **157**: 216, 1949.

Thyroidectomy was shown to accelerate the development of histamine-induced peptic ulcers in guinea pigs. Benadryl failed to influence the develop-

ment or course of such ulcers. In the hyperthyroid state produced by the administration of thyroxin or desiccated thyroid, a striking susceptibility to acute histamine poisoning occurred. Thiouracil, in amounts sufficient to depress the basal metabolic rate and produce goitrous changes, did not alter the development or course of histamine-induced peptic ulcers. F.

Some Vascular Effects of N-dimethylamino-methylethyl-dibenzoparathiazine (Phenergan). Glanzman, S., and Salva Miguel, J. A.: Acta Allergologica **2**: 26, 1949.

Phenergan; administered intravenously in the cat, causes an immediate depressing vascular action. The speed of injection is an important factor in the extent to which the arterial pressure is lowered. Phenergan, unlike Benadryl, has no influence on the depressing vascular action of acetylcholine. This drug acts similarly to other antihistaminic drugs in potentiating the effects of epinephrine. H.

Increased Permeability of the Hemoencephalic Barrier Produced by Physostigmine and Acetylcholine. Grieg, M. E., and Holland, W. C.: Science **110**: 237, 1949.

Cholinesterase appears to be responsible for maintaining the hemoencephalic barrier. When physostigmine was employed to inhibit the cholinesterase, the permeability of the hemoencephalic barrier to acid fuchsin in frogs appeared to be increased. This change in permeability is similar to that found in dog erythrocytes treated with physostigmine. The acetylcholine-cholinesterase system may have a widespread function in maintaining normal permeability of the living cell. F.

Chronic Cor Pulmonale. Clinical Roentgen Study of 150 Cases. Vaquero, M.: Arch. Inst. cardiol. México **18**: 753, 1948.

Pulmonary sclerotic emphysema was present in 150 cases studied and was complicated by chronic bronchitis in 69. Early chronic pulmonary heart is manifested by dyspnea, cough, and frequently by cyanosis. The roentgen examination of the chest shows a normal cardiovascular silhouette, moderate enlargement of the branches of the pulmonary artery, pulmonary sclerotic emphysema, and pulmonary disease. In the advanced stage, cyanosis, moderate congestion of the jugular veins, moderate enlargement of the liver, increased venous pressure, and increased circulation time also occur. Roentgen examination of the heart shows dilation of the right heart, rotation of the heart, and enlargement of the middle arch of the left cardiac profile. Electrocardiographic changes are significant and distinct in both early and advanced stages of chronic cor pulmonale. The final and third stage of this disease is manifested by rapidly progressive cardiac insufficiency, edema, and passive congestion of the bases of the lung. H.

Recent Advances in the Domain of the Anti-Histaminic Substances: The Phenothiazine Derivatives. Halpern, B. N.: Bull. New York Acad. Med. **25**: 323, 1949.

Experimental studies with N-dimethylamino-2-propyl-1-phenothiazine (3277 R.P. or Phenergan) have shown it to be a drug of unusual antihistaminic and antianaphylactic potency. Clinically, Phenergan was found to be of value in serum sickness, urticaria, angioneurotic edema, hay fever, and allergic pur-

pura. Little relief was afforded in cases of asthma, migraine, pruritus, and eczema. Nonallergic conditions, such as experimentally induced acute pulmonary edema and orthostatic albuminuria, were also favorably influenced by the drug. Experimental studies indicated that Phenergan acts by decreasing capillary permeability. Hence, it is particularly effective in pathological conditions characterized by marked extravasation through the capillary walls as, for example, experimental acute pulmonary edema, orthostatic albuminuria, urticaria, and migraine. The only side effects of this drug were drowsiness and vertigo, which occurred in about 25 per cent of the patients. These effects were impossible to predict and occurred even with very small doses. C.

Stimulation of Gastric Secretion in Man by Theophyllin Ethylenediamine. Krasnow, S., and Grossman, M. I.: Proc. Soc. Exper. Biol. & Med. **71**: 335, 1949.

Following control studies of gastric secretion on a fasting stomach, ten patients received 0.5 Gm. of theophylline orally, and ten others a similar amount intravenously. Subjects treated intravenously showed a maximum rise of hydrochloric acid in fifteen minutes. Forty-five minutes was required to produce the same result following oral administration. It was concluded that theophylline administered orally or intravenously stimulates the secretion of acid gastric juice in man. R. WISEMAN.

Miscellaneous

The Use of Antihistaminic Drugs in Human Tuberculosis. A Preliminary Report. Judd, A. R., and Henderson, A. R.: Ann. Allergy **7**: 307, 1949.

Various antihistaminic drugs in daily doses of 300 to 400 mg. were used in the treatment of thirty tuberculous patients for periods ranging up to seven months. Clinical improvement was graded on the basis of favorable changes in roentgenogram, temperature, sputum, weight, appetite, and feeling of well-being. Patients with exudative and pneumonic lesions responded most favorably. As the lesions progressed in chronicity, the antihistaminic drugs became less effective. In twenty-four patients, a positive Mantoux reaction was converted to a negative response. X-ray findings decreased in eleven patients and sputum and cough decreased in eighteen. Weight gain occurred in 60 per cent of the series. The improvement noted during antihistaminic therapy was not maintained when therapy was stopped, but was re-established with return to therapy. W.

Studies on Diphtheria. IV. The Skin Factor in the Schick Reaction. Vahlquist, B., and Hogstedt, C.: J. Immunol. **62**: 277, 1949.

The authors studied the Schick reaction in three different groups of people: (1) subjects with no demonstrable diphtheria antitoxin, (2) individuals passively sensitized with homologous diphtheria antisera, and (3) patients actively immunized with diphtheria toxoid. In many individuals, no sharp border was found to exist between positive and negative reactions. Since newborn babies with no previous exposure to diphtheria have negative Schick reactions, it was suggested that nonspecific skin factors may definitely influence the reaction. The authors conclude that, under certain conditions, a negative Schick test may not be an exact index of the patient's degree of immunity. R. WISEMAN.

INDEX NUMBER

Allergy Abstracts

EDITOR

M. M. ALBERT
Brooklyn

ASSOCIATE EDITORS

M. HARTEN
Brooklyn

R. A. CHAIT
Brookyln

E. W. KAILIN
Washington, D. C.

J. SHERMAN
Baltimore, Md.

E. H. WALZER
Bridgeport, Conn.

H. J. FRIEDMAN
Cleveland, Ohio

ADVISORY EDITOR

M. WALZER
Brookyln

From the Allergy Division of
The Jewish Hospital of Brooklyn

Volume 14
January, March, May, July, September, November, 1949

COPYRIGHT, 1949, BY THE C. V. MOSBY COMPANY

(All rights reserved)

Printed in the
United States of America

Press of
The C. V. Mosby Company
St. Louis

AUTHORS INDEX

A

Aaron, T. H., and Criep, L. H., *77*
Abramson, S. (*See* Lurie, M. B.)
Adams, E. (*See* Roberts, S.)
Albright, A. A., and Seretan, E. L., *20*
Allen, J. R. (*See* Baer, R. L.)
Allison, J. M. (*See* Lurie, M. B.)
Almy, T. R. (*See* Laragh, J. H.)
Altemeier, W. A. (*See* Goldman, L.)
Alvord, E. C. (*See* Kellner, A.)
—, Correll, J. W., Ladd, A., and Kellner, A., *23*
Ameline, A., *43*
Andresen, A. F. R., *85*
Andrews, W. H. H. (*See* Maegraith, B. G.)
Arner, B. (*See* Salén, E. B.)
Arnold, P., *82*
Aronson, J. D., *30*
Atkins, J. P., *64*
Avery, R. C. (*See* Woody, E., Jr.)
Ayvazian, L. F., and Badger, T. L., *9*

B

Babb, J. W. (*See* Leiberman, G. E.)
Bacal, H. L., and Pedius, S., *48*
Badger, T. L. (*See* Ayvazian, L. F.)
Baer, R. L., Kline, P. R., and Rubin, L., *50*
—. (*See* Meltzer, L.)
—, Witten, V. H., and Allen, J. R., *35*
Baker, E. E. (*See* Smith, C. E.)
Baldridge, G. D. (*See* Sternberg, T. H.)
Barbour, C. M., and Jowell, R. M., *43*
Bazemore, J. M. (*See* Witherspoon, F. G.)
Beadenkapf, W. J., Loosh, C. G., and Lack, H., *86*
Beaky, J. F., Bresnick, E., Levinson, L., and Segal, M. S., *63*
Beal, P. L., *50*
Beard, R. R. (*See* Smith, C. E.)
Beaver, D. A. (*See* Dertinger, B. L.)
Becker, R. M., *21*
Beek, C. H., *33*
Beham, H., and Perr, H., *4*
Beith, E. M. (*See* Fleming, D. S.)
Bell, F. (*See* Habel, K.)
Benacerraf, B., and Fischel, E. E., *87*
— and Kabat, E. A., *87*
—. (*See* Kabat, E. A.)
Bencke, M., and Obermayer, M. E., *18*
Beraldo, W. T. (*See* Silva, M. R.)
Berk, M. S., and Sostek, S. B., *38*
Bernton, H. S., *48*
—, Coulson, E. J., and Stevens, H., *67*
Bierman, W., *25*
Blank, H. (*See* Shaffer, B.)
Blanton, W. B., and Sutphin, A. K., *31*
Blatt, H., and Nantz, F. A., *17*
Blaumoutier, P. (*See* Vallery-Radot, P.)
Blazar, H. (*See* Leopold, I. H.)
Blood, D. W., and Patterson, M.D., *29*
Bloom, D., and Weiner, M. A., *51*
Bloom, S. (*See* Markow, H.)
Blumberg, H. (*See* McChesney, E. W.)
Bogoch, A. (*See* Mullinger, M. A.)
Bondi, A., Jr. (*See* Kolmer, J. A.)
Bonnevie, P., *49*
Bouroncle, B., *38*
Boyd, L. G., Weissberg, J., and McGavack, T. H., *28*
Bresnick, E. (*See* Beaky, J. F.)
Brewster, J. M., *62*
Brown, B. B., and Werner, H. W., *13*
Bryan, F. A. (*See* Taplin, G. V.)
Buckley, J. J., Buckley, S. M., and Gey, M. K., *70*
Buckley, S. M. (*See* Buckley, J. J.)
Bukantz, S. C. (*See* Dammin, G. J.)

C

Campbell, B., *11*
Caplan, H. (*See* Melville, K. I.)
Cardella, J. W. (*See* Solomon, D. H.)
Cardello, J., *53*
Cargill, W. H. (*See* Hickam, J. B.)
Carliner, P. (*See* Gray, L.)
Castillo, J. C., *40*
Chait, R. A. (*See* Walzer, E. H.)
Chalmers, J. D. (*See* Craig, J.)
Chen, G., and Clarke, I. G., *28*
Chen, K. K., *12*
Churchill, J. A., and Gammon, G. D., *90*
Clark, N. S. (*See* Craig, J.)
Clarke, I. G. (*See* Chen, G.)
Clein, N. W., *83*
Cohn, M., Wetter, L. R., and Deutsch, H. F., *72*
Commission on Acute Respiratory Diseases, *45, 46*
Cormia, F. E., and Lewis, G. M., *18*
Correll, J. W. (*See* Alvord, E. C.)
—. (*See* Kellner, A.)
Cortés, Jose Luis, and Rodríguez, H. Emma, *42*
Coulson, E. J. (*See* Bernton, H. S.)
—, Spies, J. R., and Stevens, H., *88*
—, and Stevens, H., *56, 57*
—, —, and Shimp, F. H., *57*
Cowan, T. W., *53*
Craddock, C. G., and Lawrence, J. S., *43*
Craig, J., Clark, N. S., and Chalmers, J. D., *78*
Criep, L. H. (*See* Aaron, T. H.)
Cross, W. J., *86*
Cruchaud, S. (*See* Halpern, B. N.)
Crusius, M. E. (*See* Schwartzman, J.)
Cruz, W., and Da Silva, E., *57*

D

Daily, L., Jr. (*See* Daily, R. K.)
Daily, R. K., and Daily, L., Jr., *52*
Dammin, G. J., and Bukantz, S. C., *40*
Danielopolu, D., *11*
Da Silva, E. (*See* Cruz, W.)
Davis, J., and Haterius, H., *59*
Davison, F. W., *64*
Dean, W. (*See* Leopold, I. H.)

Dencker, F., and Schwartz, M., *27*
Denton, C. (*See* Schiller, I. W.)
Dertinger, B. L., Beaver, D. A., and Lands, A. M., *12*
Dethier, F. M. (*See* Solomon, D. H.)
Deutsch, H. F. (*See* Cohn, M.)
Dickey, R. F. (*See* Forster, H. W.)
Dietz, M. W. (*See* Lett, J. E.)
Dilks, E. (*See* Wolfe, H. R.)
Dixon, F. J. (*See* Warren, S.)
Donnelly, A. (*See* Van Alyea, O. E.)
Dorenson, S. M., *65*
Drabkin, D. L. (*See* Ehrich, W. E.)
Dreyer, N. B. (*See* King, J. W.)
—, and King, J. W., *24*
Dubos, R. J. (*See* Middlebrook, G.)
Duca, C. J., and Scudi, J. V., *86*
Dufour, R., *66*

E

Eagle, W. W., *7*
Ehrich, W. E., Drabkin, D. L., and Forman, C., *89*
—, Seifter, J., and Forman, C., *35*
Elias, N. (*See* McGavack, T. H.)
Ellis, F. A., and Siegel, J. M., *82*
Endicott, K. M. (*See* Habel, K.)
Epstein, E., *80*
Ercoli, N., Schachter, R. J., Heuper, W. C., and Lewis, M. N., *60*
Etter, R. L. (*See* Prince, N. E.)

F

Fabricant, N. D., and Perlstein, M. A., *33, 52*
Fagraeus, A., *14*
Falk, C. A., *22*
Falk, M. S., and Newcomer, V. D., *86*
Fanberg, S. J., and Sharlit, H., *6*
Fanger, H. (*See* Solomon, D. H.)
Farrerons-Co., F. J., *74*
Feldman, M. D. (*See* Goldman, L.)
Ferrebee, J. W. (*See* Solomon, D. H.)
Fischel, E. E. (*See* Benacerraf, B.)
—, LeMay, M., and Kabat, E., *61*
Fleming, D. S., Greenburg, L., and Beith, E. M., *14*
Flensborg, E. W., and Samsoe-Jensen, T., *17*
Forman, C. (*See* Ehrich, W. E.)
Forney, J. E. (*See* Raffel, S.)
Forster, H. W., Jr., and Dickey, R. F., *65*
Foss, B., *72*
Fowler, M. J. (*See* Taub, S. J.)
Fralick, F. B., and Kress, R. D., *67*
Frank, D. E., *40*
Frank, S. (*See* Gellhorn, E.)
Franklin, W. (*See* Lowell, F. C.)
—. (*See* Schiller, I. W.)
Freese, H. B. (*See* Hambourger, W. E.)
Frenkel, J. K., *23*
Freund, J., Thomson, K. J., Hough, H. B., Sommer, H. E., and Pisani, T. M., *39*
Freyd, R. L., *11*
Friedlaender, A. S., and Friedlaender, S., *75*
—, —, and Vandenbelt, J. M., *41*
Friedlaender, S. (*See* Friedlaender, A. S.)

G

Gairdner, D., *54*
Gammon, C. D. (*See* Churchill, J. A.)
Gaul, L. E., and Underwood, G. B., *51, 65*
—. (*See* Underwood, G. B.)
Gay, L. N., and Long, J. W., *32*
Gelfand, H. H., *3*
Gellhorn, E., and Frank, S., *41, 73*
Gey, M. K. (*See* Buckley, J. J.)
Ginzburg, L. (*See* Lesnick, G.)
Giscafre, L. (*See* Urbach, K. F.)
Glanzman, S., and Salva Miguel, J. A., *91*
Glass, G. D. (*See* Rubin, J. H.)
Glenn, H. R. (*See* Lopp, G. M.)
Glick, A. W. (*See* Peck, S. M.)
—, Weissberg, G., and Peck, S. M., *19*
Goddall, H. (*See* Holmes, T. H.)
Goebel, W. F., and Perlman, G. E., *73*
Gold, M. M. A. (*See* Lang, K.)
Goldman, L., and Feldman, M. D., *33*
—, —, and Altemeier, W. A., *18*
Gordon, B. (*See* Motley, H. L.)
Gorin, N., *80*
Graf, W., and Nilzen, H., *13*
Grant, W. M., and Loeb, D. R., *34*
Gray, L., and Carliner, P., *75*
Grayzel, D. M. (*See* Spatt, S. D.)
Greenburg, L. (*See* Fleming, D. S.)
Grieg, M. E., and Holland, W. C., *91*
Grossman, M. I. (*See* Janowitz, H.)
—. (*See* Krasnow, S.)
—, and Robertson, C. R., *13*
Grub, E. S. (*See* Lopp, G. M.)

H

Habel, K., Endicott, K. M., Bell, F., and Spear, F., *88*
Halpern, B. N., *27, 91*
—, and Hamburger, J., *60*
—, —, and Cruchaud, S., *27*
—. (*See* Vallery-Radot, P.)
Ham, J. C., and Zrindahl, W. T., *69*
Hambourger, W. E., Freese, H. B., Winbury, M. M., and Michiels, P. M., *42*
Hamburger, J. (*See* Halpern, B. N.)
Harkavy, J., *22*
Harris, S. (*See* Harris, T. N.)
Harris, T. N., and Harris, S., *29*
—. (*See* Lurie, M. B.)
Harsh, G. F., *65*
Hartz, P. H., and van der Sar, A., *9*
Haterius, H. (*See* Davis, J.)
Havard, E. (*See* Miller, J. J.)
Hebb, C. O., and Konzett, H., *90*
Heidelberger, M. (*See* Treffer, H. P.)
Henderson, A. R. (*See* Judd, A. R.)
Herner, B. (*See* Malmros, H.)
Heuper, W. C. (*See* Ercoli, N.)
Hickam, J. B., and Cargill, W. H., *2*
Hicks, M. L. (*See* Rives, H. F.)
Hill, K. R., *70*
Hill, L. W., *66*
Hill, W. R., Rubenstein, A. D., and Kovacs, J., Jr., *19*
Hogstedt, C. (*See* Vahlquist, B.)
Hojensgard, I. C., and Schwartz, M., *85*
Holmes, T. H., Goddall, H., Wolf, S., and Wolff, H. G., *83*
Horton, B. T. (*See* Macy, D., Jr.)
Hough, H. B. (*See* Freund, J.)
Houghton, B. C. (*See* Thatcher, J. S.)
Humphrey, J. H., *61*
Hurwitz, P., *20*

I

Ireland, P. E., *8*

J

Jack, W. W., and Taylor, E. S., *7*
Janowitz, H., and Grossman, M. I., *74*
Jaques, L. (*See* Scoggie, A.)
Jenkins, C. M., *84*
Jervis, G. A. (*See* Kaprowski, H.)
Joseph, H. L. (*See* Wooldridge, W. D.)
Jowell, R. M. (*See* Barbour, C. M.)
Judd, A. R., and Henderson, A. R., *92*

K

Kabat, E. A. (*See* Benacerraf, B.)
—, and Benacerraf, B., *71*
—. (*See* Fischel, E.)
Kanof, N. B. (*See* Rein, C. R.)
Kaprowski, H., and Jervis, G. A., *58*
Kaye, R., Whittenberger, J. L., and Silverman, L., *64*
Kellner, A. (*See* Alvord, E. C.)
—, Correll, J. W., Ladd, A. T., and Alvord, E. C., *27*
Kelly, C. D. (*See* Pady, S. M.)
Kim, E. (*See* Sjoerdsma, A.)
King, F. K., *8*
King, J. W. (*See* Dreyer, N. B.)
—, and Dreyer, N. B., *72*
Kirchheimer, W. F., and Weiser, R. S., *67*
—, —, and Van Liew, R., *53*
Kline, P. R. (*See* Baer, R. L.)
Kobernick, S. D. (*See* More, R. H.)
Kolmer, J. A., Bondi, A., Jr., and Schellinger, G., *34*
Konzett, H. (*See* Hebb, C. O.)
Kopeloff, L. M., and Kopeloff, N., *87*
Kopeloff, N. (*See* Kopeloff, L. M.)
Kovacs, J., Jr. (*See* Hill, W. R.)
Krasnow, S., and Grossman, M. I., *92*
Krayer, O., *74*
Kress, R. D. (*See* Fralick, F. B.)
Kuizenga, M. H. (*See* Vander Brook, M. J.)
Kurtin, A. (*See* Peck, S. M.)

L

Lack, H. (*See* Beadenkapf, W. J.)
Ladd, A. T. (*See* Alvord, E. C.)
—. (*See* Kellner, A.)
Laden, E. L., and Rubin, L., *4*
Landowne, M., and Thompson, W. S., Jr., *42*
Lands, A. M. (*See* Dertinger, B. L.)
Lang, L. P. (*See* Motley, H. L.)
Lange, K., Gold, M. M. A., Weiner, D., and Simon, V., *60*
Lapin, L. (*See* Reisner, E. H., Jr.)
Laragh, J. H., and Almy, T. R., *41*
Lawrence, J. S. (*See* Craddock, C. J.)
Leddy, E. T., and Maytum, C. K., *48*
Leff, I. L. (*See* Nudelman, P.)
Leger, J., Leith, W., and Rose, B., *25*
—, and Masson, G. M. C., *10*
Leibowitz, H. (*See* Markow, H.)
Leith, W. (*See* Leger, J.)
LeMay, M. (*See* Fischel, E.)
Leopold, I. H., Dean, W., and Blazar, H., *52*
Lesnick, G., Siegal, S., and Ginzburg, L., *36*
Lett, J. E., and Dietz, M. W., *80*
Levin, S. J., and Moss, S. S., *81*
Levinson, L. (*See* Beaky, J. F.)
Levitan, B., *9*
Levy, S. B., *48*
Lewis, G. M. (*See* Cormia, F. E.)
Lewis, M. N. (*See* Ercoli, N.)
Lieberman, G. E., and Babb, J. W., *20*
Lipman, W. H., *79*
Livingood, C. S. (*See* Pillsbury, D. M.)
Loeb, D. R. (*See* Grant, W. M.)
Long, J. W. (*See* Gay, L. N.)
Loosh, C. G. (*See* Beadenkapf, W. J.)
Lopp, G. M., Grug, E. S., and Glenn, H. R., *28*
Lowell, F. C., and Franklin, W., *84*
—. (*See* Schiller, I. W.)
Lurie, M. B., Harris, T. N., Abramson, S., and Allison, J. M., *55*

M

MacMillan, K. D., *34*
McAuliff, J. P. (*See* McChesney, E. W.)
McChesney, E. W., McAuliff, J. P., and Blumberg, H., *74*
McGavack, T. H. (*See* Boyd, L. J.)
—, Schulman, P., Schutzer, R., and Elias, N., *82*
McKnight, W. P. (*See* Seydell, E. M.)
McNally, W. D., and Seull, R. H., *81*
Macy, D., Jr., and Horton, B. T., *7*
Maegraith, B. G., Andrews, W. H. H., and Wenyon, C. E. M., *71*
Mallory, T. B., *16*
Malmros, H., and Herner, B., *68*
Marcussen, P. V., *66*
Markow, H., Bloom, S., and Leibowitz, H., *3*
Marsh, D. F., and Van Liere, E. J., *29*
Marsh, W. C., and New, W. N., *6*
Masson, G. M. C. (*See* Leger, J.)
Mauni, G. (*See* Vallery-Radot, P.)
Maytum, C. K. (*See* Leddy, E. K.)
Meltzer, L., and Baer, R., *50*
Melville, K. I., and Caplan, H., *25*
Metaxas, M. N., and Mataxas-Buhler, M., *21*
Metaxas-Buhler, M. (*See* Metaxas, M. N.)
Metcalf, J. (*See* Weller, R. W.)
Michiels, P. M. (*See* Hambourger, W. E.)
Middlebrook, G., and Dubos, R. J., *62*
Miller, J. J., Ryan, M. L., and Havard, E., *78*
Miller, O. G. (*See* Saunders, T. S.)
Miller, R. E. (*See* Taub, S. J.)
More, R. H., and Waugh, D., *77*
—, —, and Kobernick, S. D., *76*
Mortimer, F. S. (*See* Perry, D. J.)
Moss, S. S. (*See* Levin, S. J.)
Motley, H. L., Lang, L. P., and Gordon, B., *16*
Moyer, J. H., Jr., *19*
Mullinger, M. A., and Bogoch, A., *9*
Myer, L. (*See* Van Rijssel, T. G.)

N

Nance, F. D., *23*
Nantz, F. A. (*See* Blatt, H.)
Narins, R. S., *37*
Nasset, E. S. (*See* Watman, R. N.)
New, W. N. (*See* Marsh, W. C.)
Newcomer, V. D. (*See* Falk, M. S.)

Nilzen, H. (*See* Graf, W.)
Norrlind, R., *81*
Nudelman, P. L., and Leff, I. L., *4*

O

Obermayer, M. E. (*See* Bencke, M.)
Oleson, J. S. (*See* Van Meter, J. C.)
Olson, K. J. (*See* Vander Brook, M. J.)
O'Neill, H. A. (*See* Tallant, E. J.)
Oppenheim, M., and Yacullo, W. A., *52*

P

Pady, S. M., and Kelly, C. D., *80*
Patterson, M. D. (*See* Blood, D. W.)
Peck, J. L., and Thomas, L., *39*
Peck, S. M. (*See* Glick, A. W.)
—, Siegal, S., Glick, A. W., and Kurtin, A., *5*
Pedius, S. (*See* Bacal, H. L.)
Perlman, G. E. (*See* Goebel, W. F.)
Perlman, H. H., *51*
Perlstein, M. A. (*See* Fabricant, N. D.)
Perr, H. (*See* Beham, H.)
Perry, D. J., Mortimer, F. S., and Pillsbury, D. M., *42*
—. (*See* Pillsbury, D. M.)
Pflum, F. A. (*See* Spain, W. C.)
Pillsbury, D. M., Perry, D. J., and Livingood, C. S., *49*
—. (*See* Perry, D. J.)
Pisani, T. M. (*See* Freund, J.)
Price, A. H. (*See* Tallant, E. J.)
Prince, N. E., and Etter, R. L., *56*

R

Rabinovitch, J., and Snitkoff, M. C., *5*
Raffel, S., and Forney, J. E., *54*
Rein, C. R., and Kanof, N. B., *33*
Reisner, E. J., Jr., Lapin, L., and Steinbrocker, O., *77*
Richards, R. K. (*See* Roth, L. W.)
Richmond, M. T. (*See* Vander Brook, M. J.)
Rives, H. F., Ward, B. B., and Hicks, M. L., *89*
Robbins, L. L. (*See* Schultz, M. D.)
Roberts, S., Adams, E., and White, A., *89*
Robertson, C. R. (*See* Grossman, M. I.)
Rockwell, G. E., *11*
Rodríguez, H. Emma (*See* Cortés, Jose Luis)
Rose, B. (*See* Leger, J.)
Rose, E. (*See* Weil, A. J.)
Rosenberger, H. G. (*See* Smith, C. E.)
Rosenthal, D. B., *55*
Roth, L. W., Richards, R. K., and Sheppard, I. M., *54*
—, and Sheppard, I. M., *10*
Rottino, A., *82*
Rowe, A. H., *39*
Rubenstein, A. D. (*See* Hill, W. R.)
Rubin, J. H., and Gass, G. D., *2*
Rubin, L. (*See* Baer, R. L.)
—. (*See* Laden, E. L.)
Ruiz-Moreno, J., *81*
Ryan, M. L. (*See* Miller, J. J.)
Rynes, S., *67*
Rytand, D. A., *30*

S

Saito, M. (*See* Smith, C. E.)
Salén, E. B., and Arner, B., *15*
Salva Miguel, J. A. (*See* Glanzman, S.)
Samsoe-Jensen, T. (*See* Flensborg, E. W.)
Samter, M., *58*
Saunders, T. S., and Miller, O. G., *51*
Schachter, R. J. (*See* Ercoli, N.)
Schellinger, G. (*See* Kolmer, J. A.)
Schenck, H. P., *56*
Schiller, I. W., Lowell, F. C., Franklin, W., and Denton, C., *79*
Schloss, E. M., *84*
Schneider, M. (*See* Schwartzman, J.)
Schulman, P. (*See* McGavack, T. H.)
Schultz, M. D., and Robbins, L. L., *53*
Schutzer, R. (*See* McGavack, T. H.)
Schwartz, M. (*See* Dencker, F.)
—. (*See* Hojensgard, I. C.)
Schwartzman, J., Schneider, M., and Crusius, M. E., *36*
Schwarzweiss, H., and Tomesik, J., *44*
Scoggie, A., and Jaques, L., *69*
Scudi, J. V. (*See* Duca, C. J.)
Scull, R. H. (*See* McNally, W. D.)
Sedgwick, R. P., and Von Hagen, K. O., *62*
Segal, M. S. (*See* Beaky, J. F.)
Seifter, J. (*See* Ehrich, W. E.)
Seltzer, A., *16*
Seretan, E. L. (*See* Albright, A. A.)
Seydell, E. M., and McKnight, W. P., *7*
Shaffer, B., Spencer, M. C., and Blank, H., *17*
Shair, H. (*See* Witten, V.)
Sharlit, H. (*See* Fanberg, S. J.)
Sheldon, J. M., *31*
Sheppard, I. M. (*See* Roth, L. W.)
Sherman, W. B., *68*
Shimp, F. H. (*See* Coulson, E. J.)
Siegal, S. (*See* Lesnick, G.)
—. (*See* Peck, S. M.)
Siegel, B. B. (*See* Walzer, E. H.)
Siegel, J. M. (*See* Ellis, F. A.)
Silva, M. R., and Beraldo, W. T., *12*
Silverman, L. (*See* Kaye, R.)
Simon, F. A., *3*
Simon, V. (*See* Lange, K.)
Sjoerdsma, A., and Kim, E., *29*
Smith, C. C. (*See* Zeek, P. M.)
Smith, C. E., Whiting, E. G., Baker, E. E., Rosenberger, H. G., Beard, R. R., and Saito, M., *22*
Snitkoff, M. C. (*See* Rabinovitch, J.)
Solomon, D. H., Gardella, J. W., Fanger, H., Dethier, F. M., and Ferrebee, J. W., *85*
Sommer, H. E. (*See* Freund, J.)
Sonck, C. A., *16*
Sostek, S. B. (*See* Berk, M. S.)
Spain, W. C., and Pflum, F. A., *13*
Spatt, S. D., and Grayzel, D. M., *1*
Spear, F. (*See* Habel, K.)
Spencer, M. C. (*See* Shaffer, B.)
Spies, J. R. (*See* Coulson, E. J.)
Stein, K., *73*
Steinbrocker, O. (*See* Reisner, E. H., Jr.)
Sternberg, T. H., and Baldridge, G. D., *36*
Stetson, C. A. (*See* Thomas, L.)
Stevens, H. (*See* Bernton, H. S.)
—. (*See* Coulson, E. J.)
Stevenson, I. P., *2*
Strauss, M. J., *6*
Sullivan, M., *83*

Sutphin, A. K. (*See* Blanton, W. B.)
Swanberg, H., *43*

T

Tallant, E. J., O'Neill, H. A., Urbach, F., and Price, A. H., *55*
Taplin, G. V., and Bryan, F. A., *47*
Taylor, E. S. (*See* Jack, W. W.)
Tenchio, F., *49*
Thatcher, J. S., Houghton, C., and Ziegler, C. H., *62*
Thomas, L. (*See* Peck, J. L.)
—, and Stetson, C. A., *44, 76*
Thompson, W. S., Jr. (*See* Landowne, M.)
Thomson, H. J. (*See* Freund, J.)
Tobias, N., *19, 20*
Tomesik, J. (*See* Schwarzweiss, H.)
Tomenius, J., *69*
Treffer, H. P., and Heidelberger, M., *71*

U

Underwood, G. B. (*See* Gaul, L. E.)
—, and Gaul, L. E., *5*
Urbach, F. (*See* Tallant, E. J.)
Urbach, K. F., and Giscafre, L., *24*

V

Vahlquist, B., and Hogstedt, C., *92*
Valentine, W. N., *26*
Vallery-Radot, P., and Blaumoutier, P., *32*
—, Halpern, B. N., and Mauni, G., *24*
Van Alyea, O. E., and Donnelly, A., *67*
Vandenbelt, J. M. (*See* Friedlaender, A. S.)
Vanderbrook, M. J., Olson, K. J., Richmond, M. T., and Kuizenga, M. H., *30*
van der Sar, A. (*See* Hartz, P. H.)
Van Liere, E. J. (*See* Marsh, D. F.)
Van Liew, R. (*See* Kirchheimer, W. F.)
Van Meter, J. C., and Oleson, J. J., *75*
Van Rijssel, T. G., and Myer, L., *38*
Vaquero, M., *91*
Vendel, S., *37*
Vollmer, H., *85*
Von Hagen, K. O. (*See* Sedgwick, R. P.)

W

Waldbott, G. L., *38*
Walzer, E. H., Siegel, B. B., Chait, R. A., and Walzer, M., *3*
Walzer, M. (*See* Walzer, E. H.)
Ward, B. B. (*See* Rives, H. F.)
Warren, S., and Dixon, F. J., *10*
Watman, R. N., and Nasset, E. S., *90*
Waugh, D. (*See* More, R. H.)
Weeter, J. C. (*See* Zeek, P. M.)
Wegelui, C., *77*
Weil, A. J., and Rose, E., *71*
Weiner, A. S., *45*
Weiner, D. (*See* Lang, K.)
Weiner, M. A. (*See* Bloom, D.)
Weiser, R. S. (*See* Kirchheimer, W. F.)
Weissberg, G. (*See* Glick, A. W.)
Weissberg, J. (*See* Boyd, L. J.)
Weizenblatt, S., *84*
Weller, R. W., and Metcalf, J., *90*
Wenyon, C. E. M. (*See* Maegraith, B. G.)
Werner, H. W. (*See* Brown, B. B.)
Wetter, L. R. (*See* Cohn, M.)
White, A. (*See* Roberts, S.)
White, C. B. (*See* Witherspoon, F. G.)
Whiting, E. G. (*See* Smith, C. E.)
Whittenberger, J. L. (*See* Kaye, R.)
Wilson, J. E., *20*
Winbury, M. M. (*See* Hambourger, W. E.)
Winter, C. A., *28*
Witherspoon, F. G., White, C. B., and Bazemore, J. M., *83*
Witten, V. H. (*See* Baer, R. L.)
— and Shair, H., *49*
Wolf, S. (*See* Holmes, T. H.)
Wolfe, H. R., and Dilks, E., *59*
Wolff, H. G. (*See* Holmes, T. H.)
Wolfson, S. A., *75*
Woody, E., Jr., and Avery, R. C., *26*
Wooldridge, W. D., and Joseph, H. L., *6*

Y

Yacullo, W. A. (*See* Oppenheim, M.)

Z

Zeek, P. M., Smith, C. C., and Weeter, J. C., *36*
Ziegler, C. H. (*See* Thatcher, J. S.)
Zimdahl, W. T. (*See* Ham, J. C.)
Zini, F., *68*
Zohn, B., *37*

SUBJECT INDEX

A

Absorption of undigested protein, demonstrated by transfusion, *27*
Adenylic acid, treatment of pruritus with, *82*
Adhesive tape remover, use in patch testing of, *19*
Adjuvants, antibody formation and sensitization with aid of, *39*
Adrenalin, lymphopenia, caused by, *73*
  sensitivity of the lymphopenic reaction to, *41*
Adenocorticotrophic hormone, effect of, on anaphylaxis in guinea pig, *25*
Agglutination reaction of tuberculin sensitized red blood cells, *62*
Albumin, effect of lithium periodate on, *73*
Aliphatic and aromatic amines as vasoconstrictors, *12*
Allergic diseases, Hydryllin in the treatment of, *3*
  encephalitis, adjuvants in the production of, *58*
  factors in gout, *22*
Allergy to cow's milk, *37*
Aminophyllin, effect on blood coagulation of, *29*
Aminophylline, antipruritic properties of, *80*
  efficacy in counteracting mecholyl-induced bronchospasm of, *42*
Ammonium salts, inhibition of antigen-antibody reaction in smooth muscle by, *71*
Anamnestic reaction, effect of adrenocorticotrophic hormone on, *61*
    of x-ray on, *61*
Anaphylactic shock, antigen tracer studies in, *10*
    inhibition by acetyl salicylic acid of, *11*
Anaphylaxis, crymotherapy in, *40*
  effect of alum adjuvant and route of administration on the sensitizing dose, *57*
    of fever in, *25*
    of rutin on, *10*
  failure of antihistaminics to relieve bronchospasm due to, *40*
  in fish, *24*
  in guinea pig, influence of age and body weight, *56*
  production by antiplatelet sera of, *57*
  quantitative studies in guinea pig of passive type, *87*
  relationship of sensitizing to shocking doses, *57*
Angiomatosis simplex cutis, Pyribenzamine as a cause of, *52*
Anoxia, effects of adrenergic blocking agents on, *29*
Antergan, effect on blood sugar of, *13*
Antibiotic agents, contact-type sensitization to, *18*
Antibody, effect of adrenalectomy and adrenal cortical hormones upon, *62*
  evidence of histological synthesis of, *29*
Antibody—Cont'd
  formation, effect of roentgen irradiation on, *43*
    plasma cells as site of, *89*
    role of lymphocytes in, *88*
  production, plasma cells in relation to, *14*
  response to combined antigens in infants, *14*
Anticholinergic agents as a protection against bronchospasm, *63*
Antihistaminic drugs, comparative effectiveness of, *75*
    comparison by iontophoresis of, *42*
      of Diatrin, Pyribenzamine, Benadryl, Antergan and Neo-Antergan, *60*
    effect of potassium, calcium, and magnesium ions upon recovery of the guinea pig gut from inhibition by, *12*
      on experimental uveitis of, *52*
      on normal eyes, *34*
    efficacy as a proof of histamine origin of anaphylaxis, *11*
    evaluation of the present status of, *13*
    failure to relieve anaphylactic bronchospasm of, *40*
    in Atropine dermatitis and conjunctivitis, *67*
    pharmacology of, *27*
    Phenergan, *60*
    phenothiazine derivatives, recent advances in, *91*
    Pyrrolazote and Pyribenzamine comparison of, *30*
    (R.P. 3277), protective action against experimental pulmonary edema of, *27*
    sedative effects in animals of, *28*
    spectral absorption studies of, *41*
    Thenylene as a cause of death, *89*
    Thephorin in allergic disorders, *3*
    tuberculosis treated with, *92*
Antistine in ocular allergy, *20*
Arterial hypotension, mechanism in anaphylactic and histamine shock of rabbits, *24*
Arteritis, necrotizing type due to sulfonamides, *38*
Arthus reaction, effect of Phenergan on, *87*
Aspirin hypersensitivity, *15*
Asthma, breathing exercises in, *65*
  ethyl alcohol in treatment of, *48*
  fennel as a cause of, *48*
  fever in treatment of, *25*
  Isuprel in treatment of, *79*
  Orthoxine in treatment of, *79*
  pneumoperitoneum in treatment of, *2*
  relief following onset of jaundice, *80*
  respiratory flow patterns in, *64*
  roentgen rays in treatment of, *48*
  treatment by radiotherapy of, *32*
Atopic dermatitis, scratch tests in, *37*
Atropine conjunctivitis, antihistaminic drugs in control of, *67*
  dermatitis, antihistaminic drugs in control of, *67*

Auto-antibodies, lack of production following injection of tissue extracts, streptococci, and adjuvants, *39*

B

Bacterial allergy. Identification of allergenic organisms by means of tissue culture, *17*
flora of nasopharynx in relation to the common cold, *34*
BCG vaccination, protection against clinical tuberculosis by, *30*
Bee stings, anatomic observations in fatal cases of, *77*
Beetles, contact dermatitis from, *18*
Benadryl, cold urticaria treated with, *9*
comparison with Diatrin, Pyribenzamine, Neo-Antergan and Antergan of, *60*
efficacy in counteracting mecholyl-induced bronchospasm of, *42*
inhibition of Tween 20 by, *13*
ionization of, *42*
mechanism of hyperglycemic effect of, *28*
topical application of, *82*
Biologic response, modification by various drugs of, *40*
Blepharoconjunctivitis, streptomycin as a cause of, *66*
Breathing exercises, asthma and emphysema treated by, *65*
Bronchography in the severely discharging lung, *80*
Bronchopulmonary infections in allergic individuals, *64*
Bronchoscopic observations in fibrocystic disease, *64*
Bronchospasm, anticholinergic agents in protection against, *63*
Butesin, epidermal sensitization to, *4*

C

Calcium ointment, use in dermatology of, *20*
Candida albicans, cutaneous manifestations from, *81*
Canine anaphylaxis, release of histamine and heparin from isolated livers in, *69*
Carbohydrate, relationship to antigenic property of allergenic protein from cottonseed, *88*
Cardiac lesions, production in rabbits by injections of bovine serum gamma globulin, *76*
Carditis, foreign serum as a cause of, *55*
Cerebral edema, phenobarbital as a cause of, *84*
Chocolate, skin tests with fractions of, *37*
Climatotherapy in Arizona, *2*
Coccidioidin, cutaneous testing with, *22*
Codeine, exfoliative dermatitis due to, *19*
Cold urticaria, histamine and antihistaminic drugs in treatment of, *9*
Common cold, bacterial flora of nasopharynx in, *34*
treatment with antihistaminic drugs of, *62*
Contact dermatitis, Aleyonidium hirsutum as a cause of, *49*
in lumber workers, *49*
penicillin as a cause of, *6*
Contact—Cont'd
eczema, research on fundamental aspects of, *33*
Convulsions following epinephrine, *16*
Cor pulmonale, clinical and roentgen study of, *91*
review of 42 autopsied patients, *1*
Cottonseed, antigenicity of allergenic protein of, *88*
oil, nature of sensitivity to, *67*
Cytochrome C, potential antigenicity of, *54*

D

Decapryn, effects on hypersensitivity in animals, *13*
Delayed chronic inflammatory reaction at an antigen depot, the effect of systemic sensitization upon, *87*
Delirium, Pyribenzamine as a cause of, *28*
Demerol-scopolamine analgesia, edema from, *7*
Dermatitis, beetles as a cause of, *18*
caused by rubber, *82*
organomercurial compounds as a cause of, *65*
overtreatment reactions in, *5*
Dextrose, bronchial asthma treated with, *31*
Diatrin, comparison with Pyribenzamine, Benadryl, Antergan and Neo-Antergan of, *60*
Digitoxin, relation to histamine of, *29*
Disseminated lupus, allergic etiology of, *9*
Drug allergy, *68*
Dysmenorrhea, antihistaminics in treatment of, *43*

E

Eczematoid contact dermatitis, repeated patch testing in, *49*
Egg white sensitivity, influence of endocrine glands in rats on production of, *10*
Electroencephalographic abnormalities in neurodermatitis, *36*
Emphysema, pulmonary arterial hypertension in, *2*
Encephalitis, experimental production by injection of homologous brain suspensions, *70*
Endocrine glands, effects on anaphylaxis in rat of, *10*
skin tests with, *35*
Eosinopenia after epinephrine, insulin, and surgery, *41*
Eosinophilia, asymptomatic, following penicillin, *38*
effect of cortical extract and other drugs on, *73*
in gastrointestinal allergy, *23*
response in guinea pigs following sensitization, anaphylaxis, and administration of various drugs, *58*
Epilepsy, effect of antihistaminic drugs in treatment of, 90
Epinephrine, convulsions following use of, *16*
hyperglycemic action of analogs of, *74*
Ethmoid sinusitis, allergy as a factor in, *56*
Everon, reactions to, *6*
subungual hemorrhages and hyperkeratoses due to, *83*

Exfoliative dermatitis and death following use of penicillin, *5*
Experimental tuberculosis, Neohetramine in treatment of, *86*

F

Fennel, bronchial asthma caused by, *48*
Fibrocystic pancreatic disease, bronchoscopic observations in, *64*
"Finger paints," contact dermatitis due to, *19*
Fish, anaphylaxis in, *24*
Fluids, intravenous administration in bronchial asthma of, *31*
Food allergy, fever caused by, *39*
ulcerative colitis caused by, *85*

G

Gastrointestinal allergy, stool eosinophilia in, *23*
x-ray studies in, *55*
Glomerulonephritis, agglutinin reactions to human renal tissue in, *60*
glomerular origin of antigen in, *85*
pathogenesis of, *61*
production in rabbits by injection of bovine serum gamma globulin, *77*
Gold sensitivity, orbital implant as a cause of, *65*
therapy, eosinophilia during, *77*

H

Hemoencephalic barrier, effect of acetylcholine on permeability of, *91*
physostigmine on permeability of, *91*
Heparin, hypersensitivity to, *85*
Hepatic venous tree, active constriction in anaphylactic shock, *71*
Heterogenetic "mononucleosis antigen," isolation of, *44*
Hiatus hernia, paroxysmal dyspnea caused by, *48*
Histamine, counteraction of bronchoconstrictive effects by distention of lung, *25*
derivatives, treatment with, *11*
effect on pregnant and nonpregnant human beings of, *74*
in amniotic fluid, *43*
in placenta, *43*
in treatment of migraine, *7*
in umbilical blood, *43*
partition of blood histamine before and after clotting, *26*
pharmacologic relationship to digitoxin of, *29*
poisoning, relation of hyperthyroid state to, *90*
protective action of Sympathin against, *74*
shock, effect of crymotherapy on, *40*
of rutin on, *9*, *10*
Histoplasmin, patch testing with, *85*
sensitivity, relation to pulmonary calcifications of, *86*
House ivy dermatitis, treatment of, *67*
Human dander, the allergen of, *3*
Hydrogen-ion concentration of nasal secretions in children, *33*
Hydryllin, clinical evaluation of, *49*
in the symptomatic treatment of allergy, *3*
Hypersensitivity, effect of Decapryn succinate on, *13*
in salamanders, *72*

I

Immunological studies with egg white, *72*
Infantile eczema, evaluation of therapy in, *66*
Influenza A, antibody response in, *46*
clinical characteristics as compared with epidemic noninfluenzal acute respiratory disease, *45*
epidemiological and immunological studies of, *45*
reliability of immunologic methods for detection of, *46*
Insulin, antibody basis for resistance to, *84*
Intestinal allergy, intubation studies in, *84*
Intracaine, sensitivity to, *33*
Intubation in gastrointestinal allergy, *84*
Invisible ink, dermatitis due to, *51*
Iridocyclitis, experimental anaphylactic, *72*
hypertensive allergic, *53*
Irradiation of lymphoid tissue of nasopharynx, dangers of, *53*
Isopropylepinephrine, evaluation in treatment of bronchial asthma, *32*
Isuprel, action on pulmonary circulation of, *90*
toxicity of, *12*
treatment of bronchial asthma with, *79*

J

Jaundice, asthma relieved by, *80*

L

Lergitin, joint symptoms caused by, *16*
Lermoyez's syndrome, allergic nature of, *7*
Liver cells anaphylactically sensitized, tissue culture studies on, *70*
extract, hypersensitivity to, *68*
Loeffler's syndrome, eosinophilia in, *69*
penicillin as a cause of, *86*
periarteritis nodosa associated with, *69*
Lupus erythematosus, neurological manifestations of, *62*
Lymphocytes, role in antibody formation of, *88*
Lymphopenia, adrenalin as a cause of, *73*
hemorrhage as a cause of, *73*
hypoglycemia as a cause of, *73*

M

Ménière's disease, medical and surgical management of, *8*
Mercurial compounds, dermatitis venenata from organic types, *65*
Mesantoin, pancytopenia following use of, *90*
Micronized therapeutic agents, inhalation in pulmonary conditions of, *47*
pulmonary conditions, treated with, *47*
Migraine, histamine in treatment of, *7*
Molds, atmospheric studies in Denmark of, *17*
Monoglycerol para-aminobenzoate, sensitization to, *50*
Moths, dermatitis from contact with, *19*
Mucous membranes, nonregeneration in frontal sinus, *20*

N

Nail lacquer, hyperkeratosis and onycholysis due to, *6*
Nasal disorders, relationship to psychogenic stimuli, *83*
secretions, hydrogen-ion concentration of, in children, *33*
pH of, in infants and children, *52*
Nebulizers, an evaluation of, *65*
Neo-Antergan, comparison with Diatrin, Pyribenzamine, Benadryl, and Antergan of, *60*
Neohetramine, clinical toxicity of, *77*
treatment of experimental tuberculosis with, *86*
Nephritis, antihistaminic drug therapy of, *78*
Nephrosis and nephritis, poison oak dermatitis associated with, *30*

O

Ocular allergy, Antistine in treatment of, *20*
reaction to tuberculin test, *84*
Ophthalmic reaction to penicillin, *20*
Orthoxine, clinical evaluation in asthma, *79*
Oxygen, use in anaphylactic shock of, *11*

P

Palpebral eczema, streptomycin as a cause of, *66*
Paper chromatography, identification of histamine in blood by, *24*
Papular urticaria, insect bites in etiology of, *17*
treatment with DDT of, *17*
Paroxysmal dyspnea, hiatus hernia as a cause of, *48*
Passive transfer testing, effect of ultraviolet on, *81*
Patch testing, adhesive tape remover in, *19*
Penicillin, dermatitis due to, *6*
exfoliative dermatitis and death caused by, *5*
fatality following the administration of, *38*
in oil and beeswax, reaction to, *36*
oral reactions to, *86*
reactions, treatment with histamine of, *56*
sensitivity, skin tests in, *5*
Peptone shock, effect of Pyribenzamine and Atropine on, *59*
Periarteritis nodosa and hypersensitivity angiitis, differentiation between, *36*
protracted course in, *8*
Pertussis, cutaneous testing as a guide to immunity, *78*
pH of nasal secretions in infants and children, *52*
Pharmacology of antihistaminic drugs, *27*
Phenergan, antihistaminic activity of, *60*
effect on Arthus reaction of, *87*
vascular effects of, *91*
Phenobarbital, cerebral edema from, *84*
Phenol-formaldehyde condensation, contact reaction from, *51*
Phenothiazine derivatives, antihistaminic properties of, *91*
Plasma cells, role in antibody formation of, *14*
Poison oak, renal complications in, *30*
Pontocaine, sensitivity following ophthalmic use of, *53*
Potassium iodide and streptomycin, combined effect on tuberculosis in guinea pigs, *26*
Precipitins, production in different avian species, *59*
Privine-Antistine drops, conjunctivitis treated with, *52*
Procaine hydrochloride, intravenous use of, *43*
Pruritus hiemalis, *82*
Pulmonary disease, intermittent positive pressure breathing and nebulization in treatment of, *16*
fibrosis, pathology of, *16*
Pyribenzamine, angiomatosis simplex cutis caused by, *52*
comparison with Diatrin, Benadryl, Antergan and Neo-Antergan of, *60*
contact dermatitis due to, *6*
delirium due to, *28*
effect on cold urticaria, *9*
in beeswax, prolonged antihistaminic action of, *27*
pellets, in the prevention of experimental meningoencephalomyelitis, *23*

Q

Quinidine, thrombopenic purpura following use of, *4*

R

Ragweed pollen, survey of New York Metropolitan District for 1947, *3*
Reactive hyperemia, failure of antihistaminics to reduce, *42*
Rh factor in immunological reactions, *45*
Roentgen studies in gastrointestinal allergy, *55*
Rubber, contact dermatitis due to, *82*
Rutin, effect on anaphylaxis of, *10*
in histamine shock, *9*

S

Salamander, hypersensitivity in, *72*
Salvarsan, asthma due to, *16*
Schick test, nonspecific factors in, *92*
Schönlein-Henoch syndrome, clinical manifestations of, *54*
pathology of, *54*
relationship to acute nephritis of, *54*
to polyarteritis nodosa of, *54*
to rheumatic fever of, *54*
Scratch tests, comparison with intracutaneous tests, *37*
Sea sickness, Dramamine in the treatment of, *75*
Sensitivity to gold present in orbital implant, *65*
to sodium sulfacetamide, *34*
Serum disease, pathologic sequences in, *35*
sickness, treatment with histamine of, *56*
Schwartzman phenomenon, inhibition by local application of organic solvents, *44*
mechanism of, *76*

Schwartzman phenomenon—Cont'd
suppression by x-ray, benzol and nitrogen mustard of, *21*
Silicones, use in aerobiology, *80*
Sinus membranes, lack of regeneration of, *20*
Skin testing, fatal reaction as a result of, *31*
Spectral absorption studies of antihistaminic drugs, *41*
Stomatitis, streptomycin as a cause of, *4*
Streptomycin, contact dermatitis from, *81*
hypersensitivity among hospital staffs, *66*
reactions to topical therapy, *33*
stomatitis as a result of, *4*
Sulfathiazole sensitivity, *20*
Sympathin, antihistaminic properties of, *74*
Systemic tuberculin sensitivity, transfer of, *53*

T

Tagathen, prevention of histamine-induced gastric lesions in guinea pigs by, *75*
Theophyllin, stimulation of gastric secretion by, *92*
Thephorin, clinical toxicity of, *77*
disseminated neurodermatitis treated with, *6*
tolerance studies of, *28*
use in allergic disorders of, *3*
Thioglycollate cold wave process, *81*
Tissue antibody titers, influence of mode of administration upon development and release of, *89*
Tonsils, regrowth in allergic children, *83*
Toxoplasma antigens, dermal hypersensitivity to, *23*
Trichophyton, response in tuberculin-positive subjects to, *22*
Tropical eosinophilia and Loeffler's syndrome, *38*
microfilariae as a cause of, *9*
Tuberculin allergy, treatment with streptomycin of, *68*
effect of estrogen on cutaneous reactivity to, *55*
hypersensitivity, passive transfer of local type, *21*
sensitivity, relation to pulmonary calcifications of, *86*
Tuberculin—Cont'd
test, *36*
as a cause of allergic ocular reaction, *84*
type of allergy, experimental induction by picryl chloride of, *54*
Tuberculosis, antihistaminics in the treatment of, *92*
Tween 20, inhibition by Benadryl of, *13*
Tyrothricin, contact dermatitis associated with polyvalent hypersensitivity to antibiotics, *18*
disturbance of olfaction following intranasal use of, *7*

U

Ulcer, gastric, in guinea pigs induced by histamine and prevented by Tagathen, *75*
Ulcerative colitis, food allergy as a cause of, *85*
Ultraviolet erythema, inhibition by Pyribenzamine of, *50*
light, passive transfer reaction influenced by, *81*
Undecylenic acid in neurodermatitis and psoriasis, *51*
Undigested protein, absorption through transfusion of, *27*
"Univalent" antibody, passive sensitization with, *71*
Urinary obstruction due to Pyribenzamine, *75*
Urticaria, familial, due to cold, *83*
solar, studies in, *50*
Urtication, mechanism in urticaria pigmentosa of, *51*
Uveitis, antihistaminic drugs in prevention of, *52*

V

Vasoconstrictors, aliphatic and aromatic amines as, *12*
intranasal medication with, *67*
Veratramine, antagonism to cardioaccelerator action of epinephrine, *74*

W

Woodcutter's eczema, *49*

MEDICAL LIBRARY

DEC 5 1949

INDEX NUMBER

Vol. 20 NOVEMBER 1949 No. 6

THE JOURNAL OF ALLERGY

EDITORIAL BOARD

H. L. ALEXANDER, Editor
St. Louis

F. C. LOWELL, Associate Editor
Boston

W. B. SHERMAN, Associate Editor
New York

M. M. ALBERT
Brooklyn

J. H. BLACK
Dallas

S. C. BUKANTZ
St. Louis

R. A. COOKE
New York

S. M. FEINBERG
Chicago

S. B. HOOKER
Boston

F. M. RACKEMANN
Boston

B. ROSE
Montreal

F. A. SIMON
Louisville

M. B. SULZBERGER
New York

M. WALZER
Brooklyn

Official Organ of AMERICAN ACADEMY OF ALLERGY

PUBLISHED BI-MONTHLY BY THE C. V. MOSBY COMPANY
ST. LOUIS 3, U. S. A.

Copyright 1949 by The C. V. Mosby Company

CONTENTS ON INSIDE FRONT COVER

Including ALLERGY ABSTRACTS

The Journal of Allergy

CONTENTS FOR NOVEMBER, 1949

American Academy of Allergy, Fifth Annual Meeting
Atlantic City, N. J., Dec. 6-8, 1948

(Continued)

The Significance of "Valence" in Antibody Interactions. Herman N. Eisen, M.D., and Fred Karush, Ph.D., New York, N. Y. ---- 393

Experimentally Induced Insulin Resistance and Allergy in the Rabbit. William Franklin, M.D., and Francis C. Lowell, M.D., Boston, Mass. ---- 400

Hypersensitivity to Mercuhydrin With Positive Skin Test to Post-Treated Mercuhydrin Serum. M. L. Gelfand, M.D., New York, N. Y. -- 404

Original Articles

The Effect of Inhalation of Antigens by the Guinea Pig on the Production of Anaphylaxis. W. Leith, M.D., J. Leger, M.D., and B. Rose, M.D., Montreal, Quebec ---- 411

Studies in Bacterial Allergy. II. Preparation of Crude Nucleoprotein and Polysaccharide Fractions of Bacteria. James Holman, M.D., Dallas, Texas, and Oscar Swineford, Jr., M.D., University, Va. --- 418

Studies in Bacterial Allergy. III. Results of 3860 Cutaneous Tests With 34 Crude Polysaccharide and Nucleoprotein Fractions of 14 Different Bacteria. Oscar Swineford, Jr., M.D., University, Va., and James Holman, M.D., Dallas, Texas, with the technical assistance of Peggy Jean Radford, M.T., and Jean Foster, B.A., R.N. ---- 420

Electrocardiographic Studies in Bronchial Asthma. Jack Rom, M.D., and Wm. Jend, Jr., M.D., Detroit, Mich. ---- 428

Antihistaminic Effects of N,N-Dimethyl-N′-(3-Thenyl)-N′-(2-Pyridyl)-Ethylenediamine (Thenfadil) Applied Topically. F. P. Luduena, M.D., and Estelle Ananenko, B.S., Rensselaer, N. Y. ---- 434

Clinical Studies With Iron as Adjunct to Pollen Immunization and Antihistaminic Therapy in Hay Fever. Philip M. Schulman, M.D., and Abner M. Fuchs, M.D., New York, N. Y. ---- 444

Dry Patch Tests for Streptomycin Sensitivity. S. William Simon, M.D., Dayton, Ohio ---- 449

How Far Can Wind-Borne Pollen Be Disseminated? S. Senior Sack, M.D., Flushing, N. Y. ---- 453

Editorial

Twenty Years ---- 461

Book Reviews

Book Reviews ---- 462

Index

Index ---- 463

Allergy Abstracts

Asthma and Hay Fever—Dermatology—Otorhinology and Ophthalmology—Miscellaneous Allergies—Anaphylaxis—Pharmacology, Physiology, and Pathology—Miscellaneous ---- 79-92

Index ---- 93

Vol. 20, No. 6, November 1949. The Journal of Allergy is published Bi-monthly by the C. V. Mosby Company, 3207 Washington Blvd., St. Louis, Mo. Subscription Price: United States, its Possessions, Pan-American Countries, $7.50; In Canada and other foreign countries, $8.00. Entered as Second-Class Matter, November 15, 1929, at the Post Office at St. Louis, Missouri, under the Act of March 3, 1879. Printed in the U. S. A.

INDEX TO ADVERTISERS

Please mention "The Journal of Allergy" when writing to our advertisers—it identifies you

Allergen-Proof Encasings, Inc. ---------- 16
Almay, Inc. ---------- 14

Back Copies Wanted ---------- 20
Blatt & Company, C. G. ---------- 20
Borden's Prescription Products -------- 4
Brewer & Company, Inc. ---------- 2

Chicago Dietetic Supply House, Inc. -- 20
Christmas Seals ---------- 24
Ciba Pharmaceutical Products, Inc. --- 3

Expert Bedding Company ---------- 18

Green Associates, L. S. ---------- 16

Hoffmann-La Roche, Inc. ---------- 9
Hollister-Stier Laboratories ---------- 19

Kannengiesser & Company ---------- 21

Maltine Company, The ---------- 1
Marcelle Cosmetics, Inc. ---------- 10
Merck & Co., Inc. ---------- 23
Merrell Company, The William S. ------ 8

Parke, Davis & Company ---------- 5

Ralston Purina Company ---------- 22
Rexair Division, Martin-Parry Corp. -- 18

Schering Corporation ---------- 13
Searle & Company, G. D. ---------- 11
Special Milk Products, Inc. ---------- 7

U. S. Savings Bonds ---------- 25

Westwood Pharmaceuticals ---------- 6
Winthrop-Stearns, Inc. ------- 15, 17, Cover
Wyeth Incorporated ---------- 12

Black's Second Edition . . .

Vaughan's PRACTICE OF ALLERGY

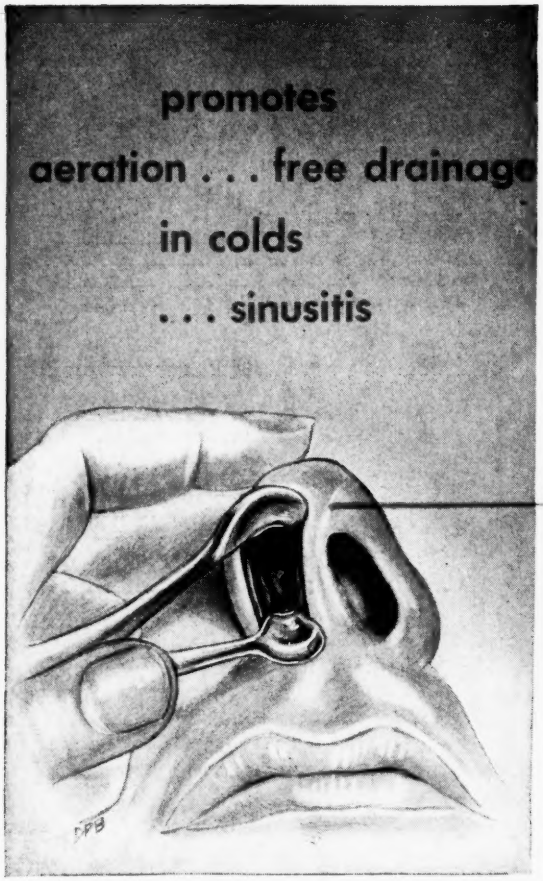
By WARREN T. VAUGHAN, M.D., Richmond, Virginia
Revised by J. HARVEY BLACK, M.D., Dallas, Texas

1092 Pages *319 Illustrations* *Price $15.00*

The work of revising *Practice of Allergy*, first published in 1939, was interrupted by the death of Dr. Warren T. Vaughan. In carrying through the revision, Dr. J. Harvey Black tried to retain the quality and the flavor of the book so that it might remain as it was written—for it was Dr. Vaughan's distinctive style and personality that make for its greatness and popularity. Dr. Black, however, added considerably new material, bringing the subject matter up to date.

To Mr. O. C. Durham, Chief Botanist in the Abbott Laboratories, Chicago; Technical Director of the Committee on National Pollen Survey, we are indebted for the chapters on Field Surveys and Aerobiology; Development and Technic. Dr. J. B. Howell, Dallas, has rewritten the chapter on Fungus Infection with Associated Allergy, so that it represents the present thinking of the dermatologist on Allergy. The Chapter on Vital-Capacity has been rewritten by James Holman, Dallas.

THE C. V. MOSBY CO.—Publishers—St. Louis 3, Mo.



Nasal membrane showing increased leukocytes with denudation of cilia.

Normal appearing nasal epithelium.

Nasal engorgement and hypersecretion accompanying the common cold and sinusitis are quickly relieved by the vasoconstrictive action of

NEO-SYNEPHRINE

HYDROCHLORIDE

Brand of Phenylephrine Hydrochloride

The decongestive action of several drops in each nostril usually extends over two to four hours. The effect is undiminished after repeated use.

Relatively nonirritating . . . Virtually no central stimulation.

Supplied in ¼% solution (plain and aromatic), 1 oz. bottles. Also 1% solution (when greater concentration is required), 1 oz. bottles, and ½% water soluble jelly, ⅝ oz. tubes.

Winthrop-Stearns INC.
NEW YORK 13, N. Y. WINDSOR, ONT.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Neo-Synephrine, trademark reg. U. S. & Canada